VII Semester B. Tech Degree Examination

13.703 COMPUTER INTEGRATED MANUFACTURING SYSTEMS (P)

Time: 3Hrs   Marks: 100

Model Question

PART – A

(Answer all questions. Each question carries 2 marks)

I.

    a. What is meant by product development cycle?

    b. Differentiate between wireframe and solid model.

    c. List various activities in CIM

    d. What are the benefits of group technology?

    e. Explain adaptive control constraint (ACC) strategy.

    f. Find the control resolution of a robot with a total range of 1.0 m having a 12 bit controller.

    g. Give the advantages of 3D printing

    h. Differentiate between CNC and DNC

    i. With an example explain canned cycle used in CNC programming

    j. Explain the working of re-circulating ball screw   (2 x 10 = 20 marks)

PART – B
(Answer one full question from each module)

Module - I

II.

    a. Is CIM a concept or a technology or both? Justify your answer.   (10)

    b. What is concurrent engineering? Explain how the concurrent engineering concept affects lead time of a product?   (10)

OR

III.

    a. With a neat diagram explain CIM wheel   (10)

    b. Explain the terms primary key and foreign key in RDBMS with suitable examples. (10)

Module - II

IV.

    a. Compare OPITZ and MICLASS coding system   (10)

    b. With a neat sketch explain the working of FMS host computer   (10)

OR

V.

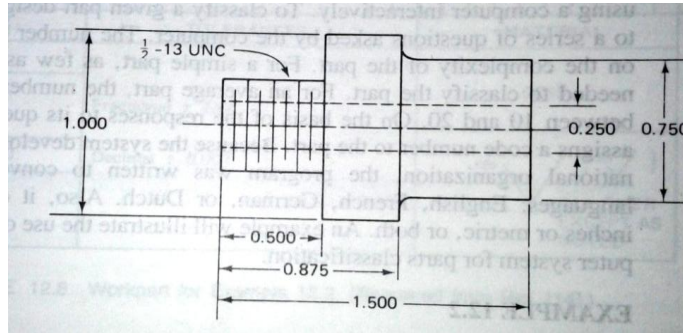a. A part design shown in the following figure-1. Develop an OPITZ code for the product

Fig-1   (10)

b. Explain the retrieval type approach in CAPP   (10)

Module - III

VI.

a. Explain any two physical configurations of industrial robot with sketches   (10)
b. Explain any two non-contact optical methods for computer aided inspection   (10)

OR

VII.

a. You are required to design a robot configuration that can pick up a hexagonal headed nut and screwed into a bolt kept vertically on a table. Also list all possible arm configurations with notations and draw corresponding work volume.   (20)

Module - IV

VIII.

a. Describe motion control system of NC machines   (10)
b. Explain with neat sketches, the working of any two transmission elements in NC machine   (10)

OR

IX.

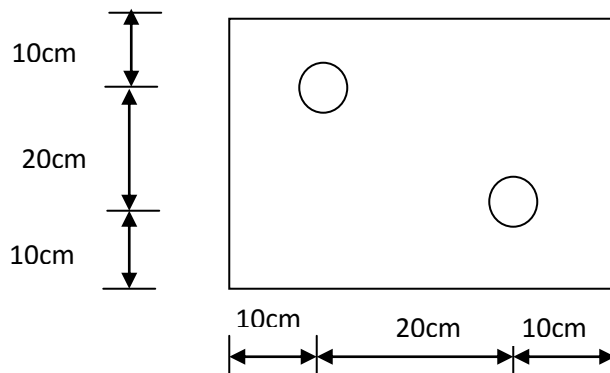a. Write a NC program to drill the work piece given in Fig-2 below   (20)

Fig-2